



## A review of the neuroscience of openness to experience

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### Abstract

Personality neuroscience is a growing field of study that investigates the underlying brain mechanisms that shape individual differences in cognition, motivation, emotion, and behavior, using neuroscience methods. Openness to experience is one of the big five traits of personality and generally can be described as the tendency towards cognitive exploration. Identifying the neural correlates of openness to experience is important in understanding the characteristics of intelligence and creative thinking, as openness to experience is the only trait out of the big five traits that shows a consistent positive association with IQ and creativity. In this review, we survey some of the research on the biological underpinnings of openness to experience. We overview studies that investigated different aspects of brain structure and function and their relationship with openness to experience, as well as the neuroscientific tools that made these studies possible. We also review some of the studies that used graph-theoretical analysis to investigate the network features of the brain and their relationship with openness to experience.

**Keywords:** Openness to Experience, Five-factor Model, Personality, Neuroscience